

Markets & Business

Russia and the Euro

Deputy Finance Minister Alexei Ulyukayev says the central bank had been amassing euros in its currencies basket for several months and this is likely to continue to ensure diversification of holdings in a climate of currency instability. The proportion of euros in Russia's reserves was now more than 25%, compared with less than 10% at the start of '02. Chief economic advisor, Andrei Illarionov said the share of euros was set to grow further. Russia's foreign trade is 38% denominated in euros. The shift to the euro is significant because it is likely to be a long-term shift, Russia moving closer to Europe.

China supplies US

US high-technology exports dropped 26% between 2000 and 2002, while China became the biggest supplier of electronics to the US. According to an AeA industry study, US exports fell to \$166bn in '02. Cumulatively, the US is running a record \$54bn high-tech trade deficit as of end '02. China, has replaced Japan and Mexico as the largest supplier of electronics to the US market. AeA said findings show "international trade in high-tech services is playing an increasingly important role" in the global economy. A report on Chinese R&D centres stressed the importance of globalisation in evolution of US-China R&D

Corporate profits

The taxing of EU corporate profits in 2001 finds Germany carrying the heaviest burden at 36.0 % then France 35.8%, Netherlands 32.9 %, UK 29.1 %, Spain 23.6% and Ireland at only 10.8 %.

ESA and EC to road map space technology R&D

The European Space Agency and its 16 national delegations have come together with the European Commission and more than a hundred separate industries to develop future road maps for space technology R&D across the continent. The new 'European Space Technology Master Plan' consolidates the overall process for space R&D and highlights 20 separate harmonised technology areas.

"Europe has a yearly budget of approximately €400m for space technology R&D. ESA provides half of this budget, while the rest is going through national channels," said Hans Kappler, ESA director of industrial matters and technology programmes. "It is very obvious this investment has to be harmonised in order to avoid unnecessary duplications of activities and fill strategic gaps."

Credit rating reform

The US' Securities and Exchange Commission (SEC), which loosely regulates the rating agencies, currently is putting together a reforms package, which it hopes to finalise this year. This is expected to clarify and extend the Commission's current rules. A major aim is to increase competition for the current two market leaders, Standard & Poor's and Moody's. For nearly a 100 years, rating agencies have passed judgement on borrowers and graded the risk of debt instruments issued by

The necessity to identify needs, to map European capabilities and to define common European roadmaps for future developments were outlined and an overall process established. The new ESTMP includes a database of 1600 individual European technology activities. The result: through a joint

effort involving ESA, EC, the 16 ESA delegations, more than 100 industries and about 500 professionals, 20 technology areas have been harmonised.

Kappler said: "A good example of harmonisation is the area of solar cells where we had to deal with the different dimensions, the needs, the technology availability, the competitiveness, and the harmonisation between different national players."

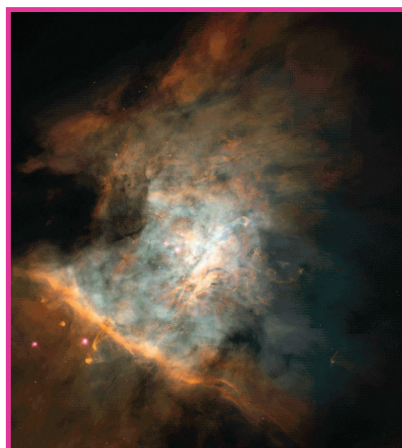
There was a clear gap in the European market for multi-junction GaAs solar cells before harmonisation,

with the technology primarily procured in the US.

"Europe needed to invest in research to gain a competitive edge in price and delivery. Resources were concentrated on a common development programme, with the aim of achieving a large-scale production capability. Today the result of the harmonisation effort is that European multi-junction solar cells are now used on the Herschel-Planck spacecraft and also being selected for Astrium telecommunication satellites."

Alain Gaubert, secretary general of Eurospace, recalled that Eurospace has 55 European companies as members representing 90% of the European industry turnover; they have to face a very serious crisis. The telecommunication market is going down.

"There is a manufacturing capability of 35 satellites per year while the total number of orders will not be more than 12 this year, and we will be happy if we just get half of these. In this situation, there is real need for a more co-ordinated approach in all R&D field and core innovation."



Orion Nebula Mosaic HST - WFPC2
PRC95-45a - ST ScI OPO - November 20, 1995
C. R. O'Dell and S. K. Wong (Rice University), NASA

Space, the playground of scientists. The Orion nebula imaged by the Hubble Space Telescope.

£90m+ for UK nanotechnology & industry

Science & Innovation Minister, Lord Sainsbury announced a £90m spend over the next six years to help industry harness commercial opportunity in nanotechnology.

Money will be spent on collaborative research and a new network of micro and nano technology facilities to help business win market share. The new investment will also get additional industry and regional spending anticipated to exceed £200m.

Funding will be allocated as follows: £50m for an Applied Research Programme to support collaborative R&D projects between industry and the

science base; £40m for new & existing facilities that will be a UK Micro Nano Technology (MNT) Network, to drive market development and exploitation around the UK, helping industry access nano technology research and resources.

Existing and anticipated micro and nanotechnology projects supported by the UK development agencies are expected to exceed £200m over the next few years. This includes a new £20-30m investment by the Northwest Development Agency for a fully equipped National Microsystems Packaging Centre to integrate and package micro and nano components into normally

sized systems and devices in product prototypes; £11m funding for 'Nanotech NI' which will provide nanotechnology equipment and researchers through Invest Northern Ireland; and £5m investment by Advantage West Midlands for a new Centre for Applied Micro systems to fill the gap in technology development from basic research to new products.

The Centre will also focus on helping the supply chain to move into the new nanotechnology marketplace. £12m will be for nano and photonic equipment and research by One NorthEast through its regional Centre of Excellence.

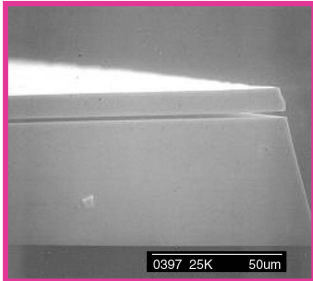
Markets & Business

Laser welding project

An EU project into a sensor controlled laser-welding robot for 3-D seam welding is in progress for March 2005. Prime Contractor is Netherland's Demar Laser. Other participants include: Fraunhofer Production Technology, Roestvrijsstaalindustrie Geton BV, Morotech Robottechniek BV, Falldorf GmbH, Tollenaar Techniek & Staalbewerking BV, Romania's SC top level SRL, Romania's National Institute Material Research, PRC Europe N.V. Distrakj Lastechniek B.V, German Pricitec KG, Twente University and Netherlands Applied Scientific Research.

Contact: Petere Ter Horst
Email: p.ter.horst@demarlaser.nl

CIS gather momentum



Credit: <http://cuml.ctr.columbia.edu/optics/CIS/cis.html>

The recently developed method of crystal ion slicing (CIS) is rapidly gathering interest and attention as a novel way of successfully obtaining single-crystal thin films. The excellent opto-electrical properties of barium titanate, BaTiO₃, make this ferroelectric crystal eminently suitable for applications such as capacitors, pyroelectric detectors, and nonlinear optics. These films possess high dielectric constants and large pyroelectric and nonlinear coefficients. However, many potential applications for barium titanate

require a thin-film form rather than a bulk crystal. Despite substantial advances in deposition technologies for barium titanate thin films, researchers have faced continued difficulty in obtaining high-quality, single-crystal thin films, since they require lattice matching to the growth substrate. CIS looks set to offer researchers a solution.

"The CIS technique enables one to slice a 0.5 micrometers to 10 micrometers-thick layer of material from a bulk single-crystal wafer by implanting the wafer with high-energy ions and subsequent thermal treatment or wet etching of the buried sacrificial implant-damaged layer," says technical insight industry manager, Girish Solanki.

Essentially, this technique uses ion implantation to modify the chemical and physical properties of materials and obtain mesoscopically thin, single-crystal films.

Chip monarchs ranked

Strategy Analytics concludes that Motorola, Infineon and STMicroelectronics continue as the top three IC vendors in the automotive market collectively holding 28% of a global market that grew by 6% to \$11.5bn in 2002. Motorola SPS gained No.1 status with a 13.4% market share, followed by Infineon (8.2%) and STM (6.6%). All three companies grew their automotive revenues in 2002, preserving their relative market rankings and each making modest market share gains. In 2003, the market researcher believes that Renesas Technology, formed in April 2003 from combining the semiconductor business units of Hitachi and Mitsubishi, could be chasing ST for the No.3 place. The 6% automotive dollar value revenue growth compares with around 2% for the total semiconductor market that was rebounding from a fall of 32% in 2001. The automotive semiconductor market declined by less than 2% in 2001.

Laser market increase

Three countries currently dominate the world market for laser systems: the US, Germany and Japan. Lasers as a cutting/welding tool for industrial production and an operating tool for the surgeon are a driving force. According to Arnold Mayer, MD Optech Consulting Switzerland total sales in 2005 at €6.4bn will reach €10.2 by 2010 from the €3.2bn in '99 and €4bn in '02.

Tech looks attractive

Gains for tech funds and the Nasdaq composite index, rising 21% Q2 are queried as to whether this is a rally or 'dead cat bounce'. Top managers say the market was from 4%-55% underpriced. Late '90s stocks had to increase profits and sales by 50-100% pa to justify investor prices. After the 2Q rise, valuations are more reasonable. Many small tech companies are now priced for annual growth rates of 15%-25%, a far more realistic pace, while many stocks remained significantly undervalued.

Markets & Business

Israel takes third place

2002 saw Israeli defence export contracts signed for \$4.02bn - mainly increased sales to Turkey and Asia. This is a 64% rise from \$2.58bn in 2001. Total volume of export contracts puts Israel into third place, behind USA and Russia, ahead of UK, France and Germany.

Sarbanes-Oxley effect

To comply with the Securities and Exchange Commission in the US, US-listed companies will not provide financial figures for subsidiaries. The range of many industry league tables will be very restricted. The unexpected development does not rest on any defined provision in the Sarbanes-Oxley Act, but on the legal advice given by the majority of lawyers in major US cities.

2003 Business schools

- Rank: School: Country:
- 1 IMDSwitzerland
 - 2 IESE Bus.Sch. Spain
 - 3 London Bus.Sch.UK
 - 4 Insead France
 - 5 Inst.de Empresa Spain
 - 6 Ashridge UK
 - 7 HEC Paris France
 - 8 Esade Spain
 - 9 Essec Man.Edu. France
 - 10 Stockholm Sch. of Econs.Swden
- Source: Financial Times

Manufacture abroad

One in 4 German manufacturing companies look to emigrate, says a Deutscher Industrie und Handelstag (DIHK) study. Of those, 42% are primarily attracted by lower overseas wages, but 32% hope to streamline their sales and services, moving parts of production, and 26% are expecting new customers.

Alcatel settles its stakes

Alcatel, Europe's largest satellite maker, is to acquire Loral Space & Communications Ltd's 47% share of the Europe *Star satellite system, as part of a transaction that successfully terminates Alcatel's JV with Loral and resolves Alcatel's litigation against Loral and its subsidiary, Space Systems/Loral Inc.

The acquisition will increase Alcatel's stake to 95%. The Europe*Star transfer is subject to German antitrust review, which Alcatel expects to complete this summer. Loral also agrees to pay Alcatel \$13m in cash, \$5m now and \$8m in under a year. Loral has also transferred its interest in the SkyBridge satellite project to Alcatel, while Alcatel gives up its interest in Loral's Cyberstar

partnership. Alcatel now plans to end its arbitration and lawsuits against Loral.

Alcatel, Intelsat and Loral have also agreed that Intelsat will pay Alcatel directly, rather than through Loral, for Alcatel's share of orbital incentives on the Intelsat IX and VII satellite programs. Alcatel expects payments to reach in the range of \$60m over the next few years.

Pascale Sourisse, chairman and CEO of Alcatel Space, stated: "Now owning 95% share in Europe*Star, plus present and future cash payments, provides substantial value. Equally important, we have clarified our relationship with Loral. Alcatel will also receive directly from Intelsat Alcatel's Intelsat IX/VII orbital incentives payments."

Assembly & test

Gartner Inc believes that the semiconductor assembly and test industry will grow 20% in 2003 over 2002.

In 2002, this industry hit \$8.35bn, up 18% over 2001.

Growth was, and is driven by the ongoing shift towards outsourcing in the IC-packaging, assembly and testing arenas. IC-packaging houses also see increased demand for higher-margin products, such as chip-scale packages, flip-chip and system-in-pack technologies.

However, for the overall equipment, Gartner can only project a 7% growth for the entire industry DURING 2003 as against 2002.

Matsushita early on RoHS

Matsushita Electric Industrial group companies will accelerate efforts to globally abolish the use of hazardous substances as specified by the EU (European Union)'s RoHS Directive on chemical substances. Beginning with products shipped from April 2005

onwards, all Matsushita group companies are expected to meet the RoHS requirements more than one year before required by the law. The RoHS Directive will require manufacturers to ban the use of lead, mercury, hexavalent chromium, cadmium, and specified

bromine-based flame retardants (PBBs and PBDEs).

Matsushita has established the China Parts Test Center in Xiamen, China and is accelerating its efforts to strengthen its pre-check and inspection function of the specified hazardous substances.

Electrical and electronic giants

Japanese companies dominate the top end of the electrical/electronic industry. Out of the leading ten, six groups are Japanese, three are American and one German. (2002 in €bn)

Rank:	Company:	Country:	Sales:	Share of capital goods:
1	General Electric	U.S.A.	141.1	20.0 %
2	IBM	U.S.A.	88.0	95.0 %
3	Siemens	Germany	84.0	80.0 %
4	Hitachi	Japan	69.3	60.0 %
5	Sony	Japan	66.6	30.0 %
6	Hewlett-Packard	U.S.A.	61.6	94.5 %
7	Matsushita	Japan	61.15	2.3 %
8	Toshiba	Japan	48.0	70.0 %
9	NEC	Japan	41.8	95.0 %
10	Fujitsu	Japan	41.4	95.2 %

Source: VDIN

Markets & Business

Watchkeeper remains

Lord Bach, UK minister for defence procurement, has told a Defence Select Committee that the air vehicles the UK is set to procure under its Watchkeeper UAV programme, currently in competitive evaluation, were a "generation ahead" of Predator. General Atomics officials refute this, expressing frustration that the UK is to press ahead with its £800m (\$1.3bn) Watchkeeper UAV development and production project when the capability, they say, already exists and could be bought off-the-shelf (COTS).

Trocomet

An unusual project on patterning of transparent organic conducting materials for electronics, named Trocomet will run until October 2005. With €129,600 funding, the research and technical development covers materials and their technologies for production and transformation and new and improved materials and production technologies in the steel field. Agfa Gaevaert NV is principal contractor

Contact: Dr, Jean-Pierre Tahon.
Email: jean-pierre.tahon.jt@belgium.agfa.com

Rosetta's go ahead

ESA's Science Programme Committee has decided on Rosetta's new mission baseline: the spacecraft is to be launched in February 2004 from Kourou, French Guiana, using an Ariane 5 launcher. The rendezvous with the new target comet, Churyumov-Gerasimenko, is expected in November 2014. The cost of the Rosetta launch delay has created a cash-flow problem for the science programme, but this will be resolved by the ESA Council, through approval of financial flexibility at Agency level.

Imbalance forecast

Market research iSuppli believes that a supply/demand imbalance is looming for the semiconductor market before the end of the year as a result of most of the excess inventory being eliminated from the supply chain.

It sees unit demand and production rates starting to creep upwards. The imbalance will occur regardless of whether demand picks up as the economy recovers. If the current upturn in unit demand is a false signal like last year, ASPs will again come under heavy pressure leading to reduced revenues and profits as over-supply develops. But if the expected pickup in orders comes through for 2H 2003 as expected, shortages in several commodity semiconductor products will develop as suppliers simply will not have the installed capacity as both IDMs and foundries focused capital expenditures on new 300mm

fabs and 0.13µ process capacity on line. Plans to develop capacity at 0.18micron or larger geometries have been neglected.

Leading edge products based on leading edge processes will be available, but difficult to sell because commodity parts used for the rest of the system will be in severe shortage. Response to demand could be slow. Equipment makers are operating with bare-bone staff and resources. Deliveries will simply be stretched out if an order spike appears. Industry's used equipment has already been installed or is heading to China. Lean inventory levels up-stream in the supply chain at the end of 2002 sparked a replenishment. This allowed chip companies to reduce excess inventory by \$1bn in Q1 2003. Chip suppliers now hold 92% of the \$300m in excess inventory still in the channel.

Global home work

A group of 17 major IT companies from Europe, the US, Japan, South Korea and China have established a Digital HomeWorking Group to facilitate the exchange of data among digital household appliances by standardising the respective technologies. The new organisation aims to enhance varying digital data processing technologies for video, voice and other data, spreading the use of so-called 'intra-home networks' that connect personal computers, portable communications devices, TV sets and audio-visual equipment. Founding members are an interesting collection - Fujitsu, Gateway, Hewlett-Packard, IBM, Intel, Kenwood, China's Legend Holdings, Matsushita Electric Industrial, Microsoft, NEC, Nokia, Philips, Samsung, Sharp, Sony, Thomson SA and STMicroelectronics.

Vertical wireless data markets shifts to vertical

A recently completed study by In-Stat/MDR finds wireless data adoption is growing in business. Not just with the "hockey-stick" growth curve. Market research based on more than 1,500 surveys in seven vertical markets show implementation of wireless data is greater than many might expect. But the extent and complexity of actual solutions vary significantly.

Many have simple 'point' solutions (one device, one service, one application) other deployments are far more intricate, says Becky Diercks, In-Stat/MDR director.

"The majority of wireless data users plan expansion so growth will come organically—from a greater number of subscribers in existing user companies."

For vendors and services to succeed it will require hard work as the wireless data market has shifted back to focus on vertical markets rather than horizontal ones such as e-mail. Needs are varied, diverse and complex. Earliest adopter industries; transport, utilities, finance, insurance and real estate have put wireless data to broad use and been able to realise the benefits. Health care has a strong desire to do big things, yet its current implementation is rather limited. Solutions must be tailored to meet individual market requirements.

The study also found that:-

- While it is easy to discount say manufacturing in favour of aggressive adopters such as transportation, vendors must not make this mistake. Sheer size of companies in vertical

markets means although overall penetration is lower, actual number of wireless WAN data subscribers is still higher.

- Current wireless data relies on the cellular network, and on private company networks. There is high implementation of wireless LANs here and these companies will be excellent prospects for public wireless LAN services in future.

- While research shows high usage of cellular phones as the wireless access devices of choice today, end user companies are focusing more attention on notebooks with wireless modems in the future.

The report, "Wireless Data in the Business Environment - Vertical Market Drivers and Opportunities" \$15,000
Contact: Email rvogelei@reed-business.com